

WE CLAIM:

1. A protein derived from an enterically transmitted non-A/non-B viral hepatitis agent whose genome contains a region which is homologous to a coding region of the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4 and having ATCC deposit no. 67717.

2. The protein of claim 1, which is encoded by a complete coding region within said 1.33 kb EcoRI insert.

3. A recombinant protein derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to a coding region of a DNA molecule having a first sequence (SEQ ID NO.1):

AGACCTGTCC CTGTTGCAGC TTTCTACCA CCTGCCCCG AGCTCGAACA GGGCCTTCTC 60
TACCTGCCCC AGGAGCTCAC CACCTGTGAT AGTGTCTGTA CATTGAATT AACAGACATT 120
GTGCACTGCC GCATGCCCGC CCCGAGCCAG CCAAGGCCG TGCTGTCCAC ACTCGTGGGC 180
CGCTACGGCG GTCGACAAA GCTCTACAAT GCTTCCGACT CTGATGTTTC GACTCTCTC 240
GCCCCGTTTA TCCCGCCAT TGGCCCCGTA CAGGTTACAA CTTGTGAATT GTACGAGCTA 300
GTGGAGGCCA TGGTCGAGAA GGGCCAGGAT GGCTCCGCCG TCCTTGAGCT TGATCTTTGC 360
AACCGTGACG TGTCAGGAT CACCTTCTTC CAGAAAGATT GTAACAAGTT CACCACAGGT 420
GAGACCATTG CCCATGTTAA AGTGGGCCAG GGCATCTCGG CCTGGAGCAA GACCTTCTGC 480
GCCCTCTTTC GCCCTTGGT CCGCGCTATT GAGAAGGCTA TTCTGGCCCT GCTCCCTCAG 540
GGTGTGTTTT ACGGTGATGC CTTTGATGAC ACCGTCTTCT CGGCGGCTGT GGCCGCAGCA 600
AAGGCATCCA TGGTGTGTTA GAATGACTTT TCTGAGTTTG ACTCCACCCA GAATAACTTT 660
TCTCTGGGTC TAGAGTGTGC TATTATGGAG GAGTGTGGGA TGCCGCAGTG GCTCATCCGC 720
CTGTATCACC TTATAAGGTC TCGTGGATC TTGCAGGCCG CGAAGGAGTC TCTGCAGGGG 780
TTTTGAAGA AACACTCCGG TGAGCCCGGC ACTCTTCTAT GGAATACTGT CTGGAATATG 840
GCCGTTATTA CCCACTGTTA TGACTTCGCG GATTTTCAGG TGCTGCCTT TAAAGGTGAT 900

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5 GATTGATAG TGTTTGCAG TGAGTATCGT CAGAGTCCAG GAGCTGCTGT CCTGATCGCC 960
GGCTGTGGCT TGAAGTTGAA GGTAGATTC CGCCCGATCG GTTGTATGC AGGTGTTGTG 1020
GTGGCCCCCG GCCTTGCGC GCTCCCTGAT GTTGTGCGT TCGCCGGCCG GCTTACCGAG 1080
AAGAATTGGG GCCCTGGCC TGAGCGGGCG GAGCAGCTCC GCCTCGCTGT TAGTGATTTT 1140
10 CTCCGCAAGC TCACGAATGT AGCTCAGATG TGTGTGGATG TTGTTTCCCG TGTTTATGGG 1200
GTTTCCCTG GACTCGTTCA TAACCTGATT GGCATGCTAC AGGCTGTTGC TGATGGCAAG 1260
GCACATTTCA CTGAGTCAGT AAAACCAGTG CTCGA 1295

a second sequence (SEQ ID NO.5):

TCGAGCACTG GTTTTACTGA CTCAGTGAAA TGTGCCTTGC CATCAGCAAC AGCCTGTAGC 60
ATGCCAATCA GGTATGAAC GAGTCCAGGG GAAACCCCAT AAACACGGGA AACAACATCC 120
20 ACACACATCT GAGCTACATT CGTGAGCTTG CGGAGGAAAT CACTAACAGC GAGGCGGAGC 180
TGCTCCGCC GCTCAGGGCC AGGGCCCAA TTCTTCTCGG TAAGCCGGCC GGCGAAGCGC 240
25 ACAACATCAG GGAGCGCGCC AAGGCCGGG GCCACGACAA CACCTGCATA CAAACCGATC 300
GGGCGGAAAT CTACCTTCAA CTCAAGCCA CAGCCGGCGA TCAGGACAGC AGCTCCTGGA 360
CTCTGACGAT ACTCACTGCA AAGCACTATC GAATCATCAC CTTTAAAGGC AGCCACCTGA 420
30 AAATCGCGGA AGTCATAACA GTGGGTAATA ACGGCCATAT TCCAGACAGT ATTCCATAGA 480
AGAGTGCCGG GCTCACCGBA GTGTTTCTTC CAAAACCCTC GCAGAGACTC CTTGCGGGCC 540
35 TGCAAGATCC ACGCAGACCT TATAAGGTGA TACAGGCGGA TGAGCCACTG CGGCATCCCA 600
CACTCTCCA TAATAGACA CTCTAGACCC AGAGAAAAGT TATTCTGGGT GGAGTCAAAC 660
TCAGAAAAGT CATTCTCAA CACCATGGAT GCCTTTGCTG CGGCCACAGC CGCCGAGAAG 720
40 ACGGTGTCAT CAAAGGCATC ACGGTAAAC ACAQCCTGAG GGAGCAGGGC CAGAATAGCC 780
TTCTCAATAG CGCGGAACCA AGGCCAAAG AGGGCGCAGA AGGTCTTGCT CCAGGCCGAG 840
45 ATGCCCTGGC CCACTTTACC ATGGGCAATG GTCTACCTG TGGTGAACCT GTTACAATCT 900
TTCTGGAAGA AGGTGATCCT GGACACGTCA CGGTTGCAA GATCAAGCTC AAGGACGGCG 960
GAGCCATCCT GGCCCTTCTC GACCATGGCC TCCACTAGCT CGTACAATTC ACAAGTTGTA 1020
50 ACCTGTACGG GGCCAATGGC CGGGATAAAA CGGGCGAGAG AGTCGCGAAC ATCAGAGTGG 1080
GAAGCATTGT AGAGCTTTGT GCGACCGCCG TAGCGGCCCA CGAGTGTGGA CAGCACGGCC 1140
55 TTGCGCTGGC TCGGGGCGGC CATGCGGCAG TGCACAATGT CTGTTAATTC AAATGTTACG 1200

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ACACTATCAC AGGTGGTGAG CTCCTGGGGC AGGTAGAGAA GGCCCTGTTC GAGCTCGGGG 1260
CAGGGTGGTA GAACAGCTGC AACAGGGACA GGTCT 1295
5 a third sequence (SEQ ID NO.6):
AGGCAGACCA CATATGTGGT CGATGCC ATGGAGGCC ATCAGTTTAT TAAGGCTCCT 57
GGCATCACTA CTGCTATTGA GCAGGCTGCT CTAGCAGCGG CCAACTCTGC CCTGGCGAAT 117
10 GCTGTGGTAG TTAGGCCCTT TCTCTCTCAC CAGCAGATTG AGATCCTCAT TAACCTAATG 177
CAACCTCGCC AGCTTGTTTT CCGCCCCGAG GTTTTCTGGA ATCATCCCAT CCAGCGTGTC 237
ATCCATAACG AGCTGGAGCT TTAAGTCCGC GCCCGCTCCG GCCGCTGTCT TGAAATTGGC 297
15 GCCCATCCCC GCTCAATAAA TGATAATCCT AATGTGGTCC ACCGCTGCTT CCTCCGCCCT 357
GTTGGGCGTG ATGTTGACCG CTGGTATACT GCTCCCACTC GCGGGCCGCG TGCTAATTGC 417
20 CGGCGTTCCG CGCTGCGCGG GCTTCCCGGT GCTGACCGCA CTTACTGCCT CGACGGGTTT 477
TCTGGCTGTA ACTTCCCGC CGAGACTGGC ATCGCCCTCT ACTCCCTTCA TGATATGTCA 537
CCATCTGATG TCGCCGAGGC CATGTTCCGC CATGGTATGA CGCGGCTCTA TGCCGCCCTC 597
25 CATCTTCCGC CTGAGGTCTT GCTGCCCCCT GGCACATATC GCACCGCATC GTATTTGCTA 657
ATTCATGACG GTAGGCGCGT TGTGGTGACG TATGAGGGTG AACTAGTGC TGGTTACAAC 717
30 CACGATGTCT CCAACTTGGC CTCCTGGATT AGAACCACCA AGGTTACCGG AGACCATCCC 777
CTCGTTATCG AGCGGGTTAG GGCCATTGGC TGCCACTTTG TTCTCTTGCT CACGGCAGCC 837
CCGGAGCCAT CACCTATGCC TTATGTCCCT TACCCCGGT CTACCGAGGT CTATGTCCGA 897
35 TCGATCTTCG GCCCGGTGG CACCCTTCC TTATCCCAA CCTCATGCTC CACTAAGTCG 957
ACCTTCCATG CTGTCCCTGC CCATATTTGG GACCGTCTTA TGCTGTTCCG GGCCACCTTG 1017
40 GATGACCAAG CCTTTTGCTG CTCCCGTTTA ATGACCTACC TTCGCGGCAT TAGCTACAAG 1077
GTCATGTTG GTACCTTGT GGCTAATGAA GGCTGGAATG CCTCTGAGCA CGCCCTCACA 1137
GCTGTTATCA CTGCCGCTA CCTTACCATT TGCCACCAGC GGTATCTCCG CACCCAGGCT 1197
45 ATATCCAAGG GGATGCGTCG TCTGGAACGG GAGCATGCC AGAAGTTTAT AACACGCCTC 1257
TACAGCTGGC TCTTCGAGAA GTCCGGCCGT GATTACATCC CTGGCCGTCA GTTGGAGTTC 1317
50 TACGCCAGT GCAGGCGCTG GCTCTCCGCC GGTTTCATC TTGATCCACG GGTGTTGGTT 1377
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TGCTGCTTCA TGAAGTGGCT TGGTCAGGAG TGCACCTGCT TCCTTCAGCC TGCAGAAGGC 1497
55 GCCGTCGGCG ACCAGGGTCA TGATAATGAA GCCTATGAGG GGTCCGATGT TGACCCTGCT 1557

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GAGTCCGCCA TTAGTGACAT ATCTGGGTCC TATGTCGTCC CTGGCACTGC CCTCCAACCG 1617
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ACAGTAAAGG TCTCCCAGGT CGATGGGCGG ATCGATTGCG AGACCCTTCT TGGTAACAAA 1737
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AATCTCTCCT TCGATGCCAG TCAGAGCACT ATGGCCGCTG GCCCTTTCAG TCTCACCTAT 1857
GCCGCTCTG CAGCTGGGCT GGAGGTGCGC TATGTTGCTG CCGGGCTTGA CCATCGGGCG 1917
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CATCCTGAGG GACTCATTGG CTTCTTCGCG CCGTTTTTCG CCGGGCATGT TTGGGAGTCG 2097
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GCCACAGATG TCGGCCGGGC CTGTGCCGGC TGTCGGGTCA CCCCCGGCGT TGTTCAGTAC 2937
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CTTCTTGCG ACCCGAACCA GATCCAGCC ATCGACTTTG AGCACGCTGG GCTCGTCCCC 3237

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GCCATCAGGC CCGACTTAGG CCCCACCTCC TGGTGGCATG TTACCCATCG CTGGCCTGCG 3297
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CGTTCGTTGT TCTGGGTGA GCCTGCCGTC GGGCAGAAAC TAGTGTTAC CCAGGCGGCC 3417
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ACCACTATTA TTGCCACAGC AGATGCCCGG GGCCTTATTC AGTCGTCTCG GGCTCATGCC 3537
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CGCGAGGTGG GCATCTCCGA TCAATCGTT AATACTTTT TCCTCGCTGG TGGCGAAATT 3657
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GAGAAGAATT GGGGCCCTGG CCTGAGCGG GCGGAGCAGC TCCGCTCGC TGTAGTGAT 4917

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CCCGTTATTC CAGCACTGCT CGCCACCGCC TTCGTCGCGG TCGGACGGG ACTGCCGAGC 6167
TCACCACCAC GGCTGCTACC CGCTTTATGA AGGACCTCTA TTTTACTAGT ACTAATGGTG 6227
TCGGTGAGAT CGGCCGCGG ATAGCCCTCA CCCTGTTCAA CCTTGCTGAC ACTCTGCTTG 6287
GCGGCTGCC GACAGAATTG ATTTGTCGG CTGGTGCCA GCTGTTCTAC TCCCGTCCG 6347
TTGTCTCAGC CAATGGCGAG CCGACTGTTA AGTTGTATAC ATCTGTAGAG AATGCTCAGC 6407
AGGATAAGGG TATTGCAATC CCGCATGACA TTGACCTCGG AGAATCTCGT GTGGTTATTC 6467
AGGATTATGA TAACCAACAT GAACAAGATC GGCCGACGCC TTCTCCAGCC CCATCGCGCC 6527
CTTTCTCTGT CCTTCGAGCT AATGATGTGC TTTGGCTCTC TCTACCGGT GCCGAGTATG 6587

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ACCAGTCCAC TTATGGCTCT TCGACTGGCC CAGTTTATGT TTCTGACTCT GTGACCTTGG 6647
TTAATGTTGC GACCGGCGCG CAGGCCGTTG CCCGGTCGCT CGATTGGACC AAGGTCACAC 6707
5 TTGACGGTCG CCCCTCTCC ACCATCCAGC AGTACTCGAA GACCTTCTTT GTCCTGCCGC 6767
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10 ATAACACCAC TGCTAGCGAC CAACTGCTTG TCGAGAATGC CGCCGGGCAC CGGGTCGCTA 6887
TTTCCACTTA CACCACTAGC CTGGGTGCTG GTCCCGTCTC CATTTCTGCG GTTGCCGTTT 6947
TAGCCCCCA CTCTGCCCTA GCATTGCTTG AGGATACCTT GGACTACCCT GCCCGCGCCC 7007
15 ATACTTTTGA TGATTCTGCG CCAGAGTGCC GCCCCCTTGG CCTTCAGGGC TCGCCTTTCC 7067
AGTCTACTGT CGCTGAGCTT CAGCGCCTTA AGATGAAGGT GGGTAAACT CGGGAGTTGT 7127
20 AG TTTATTGCT TGTGCCCGC TTCTTCTGT TGCTTATTC TCATTCTGC 7179
GTTCCGCGCT CCCTGA 7195

a fourth sequence (SEQ ID NO.10):
25 GCCATGGAGG CCCACCAGTT CATTAAGGCT CCTGGCATCA CTACTGCTAT TGAGCAAGCA 60
GCTCTAGCAG CGGCCAAGTC CGCCTTTCG AATGCTGTGG TGGTCGGCC TTTCTTTCC 120
CATCAGCAGG TTGAGATCCT TATAATCTC ATGCAACCTC GGCAGCTGGT GTTTCGTCCT 180
30 GAGGTTTTTT GGAATCACCG GATTCAACGT GTTATACATA ATGAGCTTGA GCAGTATTGC 240
CGTGCTCGCT CGGGTCGCTG CCTTGAGATT GGAGCCACAC CACGCTCCAT TAATGATAAT 300
35 CCTAATGTCC TCCATCGCTG GTTCTCCAC CCGTCGGCC GGGATGTTC ACGCTGGTAC 360
ACAGCCCCGA CTAGGGGACC TCGGCGAAC TGTGCGCGCT CGGCACTTCG TGGTCTGCCA 420
CCAGCCGACC GCACCTACTG TTTTGATGGC TTGCGGGCT GCCGTTTTGC CGCCGAGACT 480
40 GGTGTGGCTC TCTATTCTCT CCATGACTTG CAGCCGCTG ATGTTGCCGA GGCATGGCT 540
CGCCACGGCA TGACCCGCTT TTATGCAGCT TTCACTTGC CTCCAGAGGT GCTCCTGCCT 600
45 CCTGGCACCT ACCGGACATC ATCCTACTTG CTGATCCACG ATGGTAAGCG CGCGTTGTC 660
ACTTATGAGG GTGACACTAG CGCCGGTTAC AATCATGATG TTGCCACCCT CCGCACATGG 720
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50 GGCTGTCACT TTGTGTTGTT GATCACTGCG GCCCCTGAGC CTTCCCGAT GCCCTACGTT 840
CCTTACCCGC GTTCGACGGA GGTCTATGTC CGGTCTATCT TTGGGCCGG GGGTCCCCG 900
55 TCGCTGTTCC CGACCGCTTG TGCTGTCAAG TCCACTTTTC ACGCCGTCCC CACGCACATC 960

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TGGGACCGTC TCATGCTCTT TGGGGCCACC CTCGACGACC AGGCCTTTTG CTGCTCCAGG 1020
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5 GAAGGCTGGA ATGCCACCGA GGATGCGCTC ACTGCAGTTA TTACGGCGGC TTACCTCACA 1140
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10 CGTGATTACA TCCCAGGCCG CCAGCTGCAG TTCTACGCTC AGTGCCGCCG CTGGTTATCT 1320
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15 GAGTGTTCTT GTTTCCTCCA GCGCGCCGAG GGGCTGGCGG GCGACCAAGG TCATGACAAT 1500
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20 TCATACATCG TGGATGGTCG GTCTCTGCAA ACTGTCTATC AAGCTCTCGA CCTGCCAGCT 1620
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25 GCACGCCTTG AGGTTAACCG GCCTGAGCAG CTTAACCTCT CTTTTGACAG CCAGCAGTGT 1800
AGTATGGCAG CCGGCCCGTT TTGCCTCACC TATGCTGCCG TAGATGGCGG GCTGGAAGTT 1860
30 CATTTTTCCA CCGCTGGCCT CGAGAGCCGT GTTGTGTTCC CCCCTGGTAA TGCCCCGACT 1920
GCCCCGCCGA GTGAGGTCAC CGCTTCTGCG TCAGCTCTTT ATAGGCACAA CCGGCAGAGC 1980
35 CAGCGCCAGT CGGTTATTGG TAGTTTGTGG CTGCACCCTG AAGGTTTGCT CCGGCTGTTC 2040
CCGCCCTTTT CACCCGGGCA TGAGTGGCGG TCTGCTAACC CATTTTGCGG CGAGAGCAGC 2100
CTCTACACCC GCACTTGGTC CACAATTACA GACACACCTT TAACTGTCGG GCTAATTTC 2160
40 GGTCATTGAG ATGCTGCTCC CCACTCGGGG GGGCCACCTG CTAAGTCCAC AGGCCTGTCT 2220
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45 CCCTCTGGGG CCCGTCCGGC TGGCCCCAAC CCGAATGGCG TTCCGCAGCG CCGCTTACTA 2340
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50 TTTCAGCGTT ACCCTGATTC GTTTGACGCC ACCAAGTTTG TGATGCGTGA TGGCTTGCC 2520
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55 CATAACCCCA AGAGGCTCGA GGCTGCCTAC CGCGAGACTT GCGCCCGCCG AGGCACTGCT 2640

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GCCTATCCAC TCTTAGGCGC TGGCATTAC CAGGTGCCTG TTAGTTTGAG TTTTGATGCC 2700
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5 TTTGAATCCA ACCGCCCCGG TCAGCCCACG TTGAACATAA CTGAGGATAC CGCCCGTGCG 2820
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10 AAAGTCGAGC CTGGCGTTGT GCGGTATCAG TTTACAGCCG GTGTCCCCGG CTCTGGCAAG 2940
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15 AGCGGCCGTA GGGTTGTCAT TGATGAGGCC CCTTCGCTCC CCCCACACTT GCTGCTTTTA 3120
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20 TGGCATGTCA CCCACCGTTG CCCTGCAGAT GTCTGTGAGT TAGTCCGTGG TGCTTACCCT 3300
AAAATCCAGA CTACAAGTAA GGTGCTCCGT TCCCTTTTCT GGGGAGAGCC AGCTGTGCGC 3360
25 CAGAAGCTAG TGTTACACAA GGTGCTAAG GCGCGCACC CCGGATCTAT AACGGTCCAT 3420
GAGGCCAGG GTGCCACTTT TCCACTACA ACTATAATTG CAACTGCAGA TGCCCGTGGC 3480
CTCATAAGT CCTCCCGGGC TGACGCTATA GTTGTCTCA CTAGGCATAC TGAAAAATGT 3540
30 GTTATACTTG ACTCTCCCGG CCGTGTCCGT GAGGTGGTA TCTCAGATGC CATTGTTAAT 3600
AATTTCTTCC TTTCCGGTGG CCGGTGGT CACCAGAGAC CATCGGTAT TCCGCGAGGC 3660
35 AACCTGACC GCAATGTTGA CGTCTTGCG GCGTTTCCAC CTTATGCCA AATAAGCGCC 3720
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40 AGTGTGTGA CATTTGAGCT AACTGACATT GTGCACTGCC GCATGGCGGC CCCTAGCCAA 3900
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45 GCGGGTCACA CCGATGTCCG CGCCTCCCTT GCGCGCTTTA TTCCCACTCT CGGGCGGGTT 4020
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55 GAGAAGGCTA TTCTATCCCT TTTACCACAA GCTGTGTTCT ACGGGGATGC TTATGACGAC 4320

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TCAGTATTCT CTGCTGCCGT GGCTGGCGCC AGCCATGCCA TGGTGTGGA AAATGATTTT 4380
TCTGAGTTTG ACTCGACTCA GAATACTTT TCCCTAGGTC TTGAGTGC GC CATTATGGAA 4440
5 GAGTGTGGTA TGCCCCAGTG GCTTGTGAGG TTGTACCATG CCGTCCGGTC GGCCTGGATC 4500
CTGCAGGCCC CAAAAGAGTC TTTGAGAGGG TTCTGGAAGA AGCATTCTGG TGAGCCGGGC 4560
AGCTTGCTCT GGAATACGGT GTGGAACATG GCAATCATTG CCCATTGCTA TGAGTTCCGG 4620
10 GACCTCCAGG TTGCCGCTT CAAGGGCGAC GACTCGGTGC TCCTCTGTAG TGAATACCGC 4680
CAGAGCCCAG GCGCCGGTTC GCTTATAGCA GGCTGTGGTT TGAAGTTGAA GGCTGACTTC 4740
15 CGGCCGATTG GGCTGTATGC CGGGTGTGTC GTCGCCCCGG GGCTCGGGGC CCTACCCGAT 4800
GTCGTTGAT TCGCCGGACG GCTTTCGGAG AAGAACTGGG GGCCTGATCC GGAGCGGGCA 4860
GAGCAGCTCC GCCTCGCCGT GCAGGATTTC CTCCGTAGGT TAACGAATGT GGCCAGATT 4920
20 TGTGTTGAGG TGGTGTCTAG AGTTACGGG GTTTCGCCGG GTCTGGTTCA TAACCTGATA 4980
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25 CTTGACCTTA CACACTCAAT TATGACCGG TCTGAATGAA TAACATGTGG TTGCTGCGC 5100
CCATGGGTTT GCCACCATGC GCCCTAGGCC TTTTGTGTC TTGTTCTCT TGTTCCTGCC 5160
TATGTTGCCC GCGCCACCGA CCGGTGAGGC GTCTGGCCGC CGTGTGGGC GCGCAGCGG 5220
30 CGGTACCGGC GGTGGTTCCT GGGGTGACCG GGTGATTCT CAGCCCTTCG CAATCCCTA 5280
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35 CCTTCGCCAA CCAGCCCGGC CACTTGCTC CACTTGCGA GATCAGGCC AGCGCCCTC 5400
CGCTGCCTCC CGTCGCCGAC CTGCCACAGC CGGGCTGCG GCGCTGACGG CTGTGGCGCC 5460
TGCCCATGAC ACCTCACCCG TCCCGGACGT TGATTCTCG GGTGCAATTC TACGCCGCA 5520
40 GTATAATTG TCTACTTAC CCCTGACATC CTCTGTGGCC TCTGGCACTA ATTTAGTCT 5580
GTATGCAGCC CCCCTTAATC CGCTCTGCC GCTGCAGGAC GGTACTAATA CTCACATTAT 5640
45 GGCCACAGAG GCCTCAATT ATGCACAGTA CCGGGTTGCC GCGCTACTA TCCGTTACCG 5700
GCCCTAGTG CCTAATGCAG TTGGAGGCTA TGCTATATCC ATTTCTTTCT GGCCTCAAAC 5760
AACCACAACC CCTACATCTG TTGACATGAA TTCCATTACT TCCACTGATG TCAGGATTCT 5820
50 TGTTCACCT GGCATAGCAT CTGAATTGGT CATCCCAAGC GAGCGCCTTC ACTACCGCAA 5880
TCAAGGTTGG CGCTCGGTG AGACATCTGG TGTGCTGAG GAGGAAGCCA CCTCCGGTCT 5940
55 TGTCATGTTA TGCATACATG GCTCTCCAGT TAACTCCTAT ACCAATACCC CTTATACCGG 6000

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TGCCCTTGGC T TACTGGACT TTGCCTTAGA GCTTGAGTTT CGCAATCTCA CCACCTGTAA 6060
 CACCAATACA CGTGTGTCCC GTTACTCCAG CACTGCTCGT CACTCCGCCC GAGGGGCCGA 6120
 CGGGACTGCG GAGCTGACCA CAACTGCAGC CACCAGGTTC ATGAAAGATC TCCACTTTAC 6180
 CGGCCTTAAT GGGGTAGGTG AAGTCGGCCG CGGGATAGCT CTAACATTAC TTAACCTTGC 6240
 TGACACGCTC CTCGGCGGGC TCCCACAGA ATTAATTTCTG TCGGCTGGCG GGCAACTGTT 6300
 TTATTCCCGC CCGGTTGTCT CAGCCAATGG CGAGCCAACC GTGAAGCTCT ATACATCAGT 6360
 GGAGAATGCT CAGCAGGATA AGGGTGTTC TATCCCCAC GATATCGATC TTGGTGATTC 6420
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 TGCGCCATCT CGGCCTTTT CTGTTCTCG AGCAAATGAT GTACTTTGGC TGTCCCTCAC 6540
 TGCAGCCGAG TATGACCAGT CCACTTACGG GTCGTCAACT GGCCCGGTTT ATATCTCGGA 6600
 CAGCGTGACT TTGGTGAATG TTGCGACTGG CGCGCAGGCC GTAGCCCGAT CGCTTGACTG 6660
 GTCCAAAGTC ACCCTCGACG GCGGCCCTT CCCGACTGTT GAGCAATATT CCAAGACATT 6720
 CTTTGTGCTC CCCCTTCGTG GCAAGCTCTC CTTTGGGAG GCCGGCACA CAAAAGCAGG 6780
 TTATCCTTAT AATTATAATA CTAATGCTAG TGACCAGATT CTGATTGAAA ATGCTGCCGG 6840
 CCATCGGGTC GCCATTTCAA CCTATACCAC CAGGCTTGGG GCCGGTCCGG TCGCCATTTT 6900
 TCGGCCCGCG GTTTTGGCTC CACGCTCCGC CCTGGCTCTG CTGGAGGATA CTTTGTATTA 6960
 TCCGGGGCGG GCGCACACAT TTGATGACTT CTGCCCTGAA TGCCGCGCTT TAGGCCTCCA 7020
 GGGTTGTGCT TTCCAGTCAA CTGTCGCTGA GCTCCAGCGC CTAAAGTTA AGGTGGGTAA 7080
 AATCGGGAG TTGTAGTTTA TTTGGCTGTG CCCACCTACT TATATCTGCT GATTCCTTT 7140
 ATTCCTTTT TCTCGGTCCC GCGCTCCCTG A 7171

or a fifth sequence (SEQ ID NO.12):

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CGGGCCCCGT ACAGGTCACA ACCTGTGAGT GTTACGAGCT AGTGAGGCC ATGGTCGAGA 60
 AAGGCCAGGA TGGCTCCGCC GTCCTTGAGC TCGATCTCTG CAACCGTGAC GTGTCCAGGA 120
 TCACCTTTTT CCAGAAAGAT TGCAATAAGT TCACCACGGG AGAGACCATC GCCCATGGTA 180
 AAGTGGCCA GGGCATTTCG GCCTGGAGTA AGACCTTCTG TGCCCTTTTC GGCCCTGGT 240
 TCCGTGCTAT TGAGAAGGCT ATTCTGGCCC TGCTCCCTCA GGGTGTGTTT TATGGGGATG 300
 CCTTTGATGA CACCGTCTTC TCGGCGCTG TGGCCGAGC AAAGGCGTCC ATGGTGTGTTG 360
 AGAATGACTT TTCTGAGTTT GACTCCACCC AGAATAATTT TTCCCTGGGC CTAGAGTGTG 420
 CTATTATGGA GAAGTGTGGG ATGCCGAAGT GGCTCATCCG CTTGTACCAC CTTATAAGGT 480

CTGCGTGGAT CCTGCAGGCC CCGAAGGAGT CCCTGCGAGG GTGTTGGAAG AAACACTCCG 540
 GTGAGCCCCG CACTCTTCTA TGAATACTG TCTGGAACAT GGCCGTTATC ACCCATTGTT 600
 5 ACGATTTCAG CGATTTCAG GTGGCTGCCT TTAAAGGTGA TGATTGATA GTGCTTTGCA 660
 GTGAGTACCG TCAGAGTCCA GGGGCTGCTG TCCTGATTGC TGGCTGTGGC TTAAAGCTGA 720
 10 AGGTGGGTTT CCGTCCGATT GGTGTGTATG CAGGTGTTGT GGTGACCCCC GGCCTTGGCG 780
 CGCTTCCCGA CGTCGTGCGC TTGTCCGGCC GGCTTACTGA GAAGAATTGG GGCCTTGGCC 840
 CTGAGCGGGC GGAGCACTC CGCCTTGCTG TGGC 874

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 or a sequence complementary thereto.

20 4. A protein which is (a) immunoreactive with antibodies present in individuals infected with enterically transmitted nonA/nonB hepatitis and (b) derived from a viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZXF1(ET1.1) carried in E. coli strain BB4, and having ATCC
 25 Deposit Nno. 67717.

5. The protein of claim 4, which is encoded by a coding region within said 1.33 kb EcoRI insert.

30 6. A protein which is (a) immunoreactive with antibodies present in individuals infected with enterically transmitted nonA/nonB hepatitis and (b) encoded by genetic sequence 406.3-2 or 406.4-2 or a fragment thereof.

35 7. A method of detecting infection by enterically transmitted nonA/nonB hepatitis viral agent in a test individual, comprising:
 40 providing a peptide antigen which is (a) immunoreactive with antibodies present in individuals infected with enterically transmitted nonA/nonB hepatitis and (b) derived from a viral hepatitis agent whose genome contains a region which is homologous to

the 1.33 kb DNA EcoRI insert present in plasmid
pTZKF1(ET1.1) carried in E. coli strain BB4, and
having ATCC deposit no. 67717,

5 reacting serum from the test individual with
such antigen, and
 examining the antigen for the presence of
bound antibody.

10 8. The method of claim 7, wherein the serum
antibody is an IgM or IgG antibody, or a mixture of
both, the antigen provided is attached to a support,
said reacting includes contacting such serum with the
support and said examining includes reacting the
15 support and bound serum antibody with a reporter-
labeled anti-human antibody.

20 9. A kit for ascertaining the presence of serum
antibodies which are diagnostic of enterically
transmitted nonA/nonB hepatitis infection, comprising
a support with surface-bound recombinant
peptide antigen which is (a) immunoreactive with
antibodies present in individuals infected with
enterically transmitted nonA/nonB viral hepatitis
agent and (b) derived from a viral hepatitis agent
25 whose genome contains a region which is homologous to
the 1.33 kb DNA EcoRI insert present in plasmid
pTZKF1(ET1.1) carried in E. coli strain BB4, and
having ATCC deposit no. 67717, and
a reporter-labeled anti-human antibody.

30 10. A DNA fragment derived from an enterically
transmitted nonA/nonB viral hepatitis agent whose
genome contains a region which is homologous to the
1.33 kb DNA EcoRI insert present in plasmid
35 pTZKF1(ET1.1) carried in E. coli strain BB4 and having
ATCC deposit no. 67717.

11. The fragment of claim 10, which is derived from said 1.33 kb EcoRI insert.

12. A DNA molecule comprising genetic sequence 406.3-2 or 406.4-2 or a fragment thereof, wherein said fragment comprises at least 12 consecutive nucleotides.

13. A DNA fragment derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to a DNA fragment within a first sequence (SEQ ID NO.1):

AGACCTGTCC CTGTTGCAGC TGTCTACCA CCCTGCCCCG AGCTCGAACA GGGCCTTCTC 60
TACCTGCCCC AGGAGCTCAC CACCTGTGAT AGTGTCGTAA CATTTGAATT AACAGACATT 120
GTGCACTGCC GCATGGCCGC CCCGAGCCAG CGCAAGGCCG TGCTGTCCAC ACTCGTGGGC 180
CGCTACGGCG GTCGCACAAA GCTCTACAAT GCTTCCCACT CTGATGTTTC GCACTCTCTC 240
GCCCGTTTTA TCCCGGCCAT TGGCCCGTA GAGGTTACAA CTTGTGAATT GTACGAGCTA 300
GTGGAGGCCA TGGTCGAGAA GGGCCAGGAT GGCTCCGCCG TCCTGAGCT TGATCTTTGC 360
AACCGTGACG TGTCCAGGAT CACCTTCTTC CAGAAAGATT GTAACAAGTT CACCACAGGT 420
GAGACCATTG CCCATGGTAA AGTGGGCAG GGCATCTCGG CCTGGAGCAA GACCTTCTGC 480
GCCCTCTTTG GCCCTTGGTT CCGCGCTATT GAGAAGGCTA TTCTGGCCCT GCTCCCTCAG 540
GGTGTGTTTT ACGGTGATGC CTTTGATGAC ACCGTCTTCT CGGCGGCTGT GGCCGCAGCA 600
AAGGCATCCA TGGTGTGTTGA GAATGACTTT TCTGAGTTTG ACTCCACCCA GAATACTTT 660
TCTCTGGGTC TAGAGTGTGC TATTATGGAG GAGTGTGGGA TGCCGCAGTG GCTCATCCGC 720
CTGTATCACC TTATAAGGTC TCGTGGATC TTGCAGGCCG CGAAGGAGTC TCTGCGAGGG 780
TTTTGGAAGA AACACTCCGG TGAGCCCGGC ACTCTTCTAT GGAATACTGT CTGGAATATG 840
GCCGTATTA CCCACTGTGA TGAATTCGC GATTTTCAGG TGGCTGCCTT TAAAGGTGAT 900
GATTCGATAG TGCTTTGCAG TGAGTATCGT CAGAGTCCAG GAGCTGCTGT CCTGATCGCC 960
GGCTGTGGCT TGAAGTTGAA GGTAGATTTC CGCCGATCG GTTGTATGC AGGTGTTGTG 1020
GTGGCCCCCG GCCTTGGCGC GCTCCCTGAT GTTGTGCGCT TCGCCGGCCG GCTTACCGAG 1080
AAGAATTGGG GCCCTGGCCC TGAGCGGGCG GAGCAGCTCC GCCTGCTGT TAGTGATTTT 1140

CTCCGCAAGC TCACGAATGT AGCTCAGATG TGTGTGGATG TTGTTTCCCG TGTTTATGGG 1200
 GTTTCCTG GACTCGTTCA TAACCTGATT GGCATGCTAC AGGCTGTTGC TGATGGCAAG 1260
 5 GCACATTTCA CTGAGTCAGT AAAACCAGTG CTCGA 1295

a second sequence (SEQ ID NO.5):

TCGAGCACTG GTTTTACTGA CTCAGTAAA TGTGCCTTGC CATCAGCAAC AGCCTGTAGC 60
 10 ATGCCAATCA GGTATGAAC GAGTCCAGGG GAAACCCCAT AAACACGGGA AACACATCC 120
 ACACACATCT GAGCTACATT CGTGAGCTTG CGGAGGAAAT CACTAACAGC GAGGCGGAGC 180
 TGCTCCGCC GCTCAGGGCC AGGCCCCAA TTCTTCTCGG TAAGCCGGCC GCGAAGCGC 240
 15 ACAACATCAG GGAGCGGCC AAGGCCGGG GCCACCACAA CACCTGCATA CAAACCGATC 300
 GGGCGGAAAT CTACCTTCAA CTGAAGCCA CAGCCGGCGA TCAGGACAGC AGCTCCTGGA 360
 20 CTCTGACGAT ACTCACTGCA AAGCACTATC GAATCATCAC CTTTAAAGGC AGCCACCTGA 420
 AAATCGCGGA AGTCATAACA GTGGTAATA ACGGCCATAT TCCAGACAGT ATTCCATAGA 480
 AGAGTGCCGG GCTCACCAGA GTGTTCTTC CAAAACCTC GCAGAGACTC CTTGGGGCC 540
 25 TGCAAGATCC ACGCAGACCT TATAAGGTA TACAGGCGGA TGAGCCACTG CGGCATCCCA 600
 CACTCCTCCA TAATAGCACA CTCTAGACCC AGAGAAAAGT TATTCTGGGT GGAGTCAAAC 660
 30 TCAGAAAAGT CATTCTCAA GACCATGGAT GCCTTTGCTG CGGCCACAGC CGCCGAGAAG 720
 ACGGTGTCAT CAAAGGCATC ACCGTAAAAC ACACCCTGAG GGAGCAGGGC CAGAATAGCC 780
 TTCTCAATAG CGCGGAACCA AGGGCCAAAG AGGCGCAGA AGGTCTTGCT CCAGGCCGAG 840
 35 ATGCCCTGGC CCACTTTACC ATGGCAATG GTCTCACCTG TGGTGAATT GTTACAATCT 900
 TTCTGGAAGA AGGTGATCCT GCACACGTCA CGGTTGCAA GATCAAGCTC AAGGACGGC 960
 40 GAGCCATCCT GGCCCTTCTC GACCATGGCC TCCACTAGCT CGTACAATTC ACAAGTTGTA 1020
 ACCTGTACGG GGCCAATGGC CGGATAAAA CGGGCGAGAG AGTCGGAAC ATCAGAGTGG 1080
 GAAGCATTGT AGAGCTTTGT GCGACCGCC TAGCGGCCA CGAGTGTTGA CAGCACGGCC 1140
 45 TTGCGCTGGC TCGGGCGGC CATGCGGCAG TGCACAATGT CTGTTAATTC AAATGTTACG 1200
 ACACTATCAC AGGTGGTGAG CTCCTGGGC AGGTAGAGAA GGCCCTGTT CAGCTCGGG 1260
 50 CAGGGTGGTA GAACAGCTGC AACAGGGACA GGTCT 1295

a third sequence (SEQ ID NO.6):

AGGCAGACCA CATATGTGGT CGATGCC ATGGAGGCC ATCAGTTTAT TAAGGCTCCT 57
 55 GGCATCACTA CTGCTATTGA GCAGGCTGCT CTAGCAGCG CCAACTCTGC CCTGGCGAAT 117

	GCTGTGGTAG TTAGGCCTTT TCTCTCTCAC CAGCAGATTG AGATCCTCAT TAACCTAATG	177
	CAACCTCGCC AGCTTGTTTT CCGCCCCGAG GTTTTCTGGA ATCATCCCAT CCAGCGTGTC	237
5	ATCCATAACG AGCTGGAGCT TTAGTGCCGC GCCCGCTCCG GCCGCTGTCT TGAAATTGGC	297
	GCCCATCCCC GCTCAATAAA TGATAATCCT AATGTGGTCC ACCGCTGCTT CCTCCGCCCT	357
10	GTTGGGCGTG ATGTTACGCG CTGGTATACT GCTCCCACTC GCGGGCCGGC TGCTAATTGC	417
	CGGCGTTCCG CGCTGCGCGG GCTTCCCGCT GCTGACCGCA CTTACTGCCT CGACGGGTTT	477
	TCTGGCTGTA ACTTTCCGCG CGAGACTGGC ATCGCCCTCT ACTCCCTTCA TGATATGTCA	537
15	CCATCTGATG TCGCCGAGGC CATGTTCCGC CATGGTATGA CGCGGCTCTA TGCCGCCCTC	597
	CATCTTCCGC CTGAGGTCCT GCTGCCCCCT GGCACATATC GCACCGCATC GTATTTGCTA	657
20	ATTCATGACG GTAGGCGCGT TGTGGTGACG TATGAGGGTG AACTAGTGC TGGTACAAAC	717
	CACGATGTCT CCAACTGCG CTCCTGGATT AGAACCACCA AGGTTACCGG AGACCATCCC	777
	CTCGTTATCG AGCGGGTTAG GGCCATTGGC TGCCACTTTG TTCTCTTGCT CACGGCAGCC	837
25	CCGGAGCCAT CACCTATGCC TTATGTTTCT TACCCCGGT CTACCGAGGT CTATGTCCGA	897
	TCGATCTTCG GCCCGGGTGG CACCCCTTCC TTATTCCCAA CTCATGCTC CACTAAGTCG	957
30	ACCTTCCATG CTGTCCCTGC CCATATTTGG GACCGTCTTA TGCTGTTCCG GGCCACCTTG	1017
	GATGACCAAG CCTTTTGCTG CTCCTGTTTA ATGACCTACC TTCGCGGCAT TAGCTACAAG	1077
	GTCAGTGTG GTACCCTTGT GGCTAATGAA GGCTGGAATG CCTCTGAGGA CGCCCTCACA	1137
35	GCTGTTATCA CTGCCGCTA CCTTACCATT TGCCACCAGC GGTATCTCCG CACCCAGGCT	1197
	ATATCCAAGG GGATGCGTCG TCTGGAACGG GAGCATGCCC AGAAGTTTAT AACACGCCTC	1257
40	TACAGCTGGC TCTTCGAGAA GTCCGGCCGT GATTACATCC CTGGCCGTCA GTTGGAGTTC	1317
	TACGCCCAGT GCAGGCGCTG GCTCTCCGCC GGCTTTCATC TTGATCCACG GGTGTTGGTT	1377
	TTTGACGAGT CGGCCCCCTG CCATTGTAGG ACCGCGATCC GTAAGGCGCT CTCAAAGTTT	1437
45	TGCTGCTTCA TGAAGTGGCT TGGTCAGGAG TGCACCTGCT TCCTTCAGCC TGCAGAAGGC	1497
	GCCGTCCGCG ACCAGGGTCA TGATAATGAA GCCTATGAGG GGTCCGATGT TGACCCTGCT	1557
50	GAGTCCGCCA TTAGTGACAT ATCTGGGTCC TATGTCGTCC CTGGCACTGC CCTCCAACCG	1617
	CTCTACCAGG CCCTCGATCT CCCCCTGAG ATTGTGGCTC GCGCGGGCCG GCTGACCGCC	1677
	ACAGTAAAGG TCTCCAGGT CGATGGGCGG ATCGATTGCG AGACCTTCT TGTAACAAA	1737
55	ACCTTTCGCA CGTCGTTCTG TGACGGGGCG GTCTTAGAGA CCAATGGCCC AGAGCGCCAC	1797

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	AATCTCTCCT TCGATGCCAG TCAGAGCACT ATGGCCGCTG GCCCTTTCAG TCTCACCTAT	1857
	GCCGCCTCTG CAGCTGGGCT GGAGGTGCGC TATGTTGCTG CCGGGCTTGA CCATCGGGCG	1917
5	GTTTTTGCCC CCGGTGTTT ACCCCGGTCA GCGCCGGCG AGGTACC GC CTTCTGCTCT	1977
	GCCCTATACA GGTTTAACCG TGAGGCCAG CGCCATTGCG TGATCGGTAA CTTATGGTTC	2037
10	CATCCTGAGG GACTCATTGG CCTCTTCGCC CCGTTTTCGC CCGGGCATGT TTGGGAGTCG	2097
	GCTAATCCAT TCTGTGGCGA GAGCACACTT TACACCCGTA CTTGGTCGGA GGTGATGCC	2157
15	GTCTCTAGTC CAGCCCGGCC TGA CTTAGGT TTTATGTCTG AGCCTTCTAT ACCTAGTAGG	2217
	GCCGCCACGC CTACCCTGGC GGCCCTCTA CCCCCCCTG CACCGGACCC TTCCCCCCT	2277
	CCCTCTGCCC CGGCCTTGC TGAGCCGGCT TCTGGCGCTA CCGCCGGGGC CCCGGCCATA	2337
20	ACTCACCAGA CGGCCCGGCA CCGCCGCTG CTCTTCACCT ACCCGGATGG CTCTAAGGTA	2397
	TTCGCCGGCT CGCTGTTGTA GTCGACATGC ACGTGGCTCG TTAACGCGTC TAATGTTGAC	2457
25	CACCGCCCTG GCGGCGGGCT TTGCCATGCA TTTTACCAA GGTACCCCGC CTCCTTTGAT	2517
	GCTGCCTCTT TTGTGATGCG CGACGGCGCG GCCGCTACA CACTAACCCC CCGGCCAATA	2577
	ATTCACGCTG TCGCCCTGA TTATAGGTTG GAACATAACC CAAAGAGGCT TGAGGCTGCT	2637
30	TATCGGAAA CTTGCTCCCG CTTGGCACC GCTGCATACC CGCTCCTCGG GACCGGCATA	2697
	TACCAGGTGC CGATCGGCC CAGTTTTCAC GCCTGGGAGC GGAACCACCG CCCCGGGGAT	2757
35	GAGTTGTACC TTCCTGAGCT TCTGCCAGA TGGTTGAGG CCAATAGGCC GACCCGCCCC	2817
	ACTCTCACTA TAACTGAGGA TGTTGCACGG ACAGCGAATC TGGCCATCGA GCTTGACTCA	2877
	GCCACAGATG TCGGCCGGGC CTGTGCCGGC TGTCGGGTCA CCCCCGGCGT TGTTCACTAC	2937
40	CAGTTTACTG CAGGTGTGCC TGGATCCGGC AAGTCCCGCT CTATCACCCA AGCCGATGTG	2997
	GACGTTGTG TGGTCCCGAC GCGTGAGTTG CGTAATGCT GGCGCCGTCG CGGCTTTGCT	3057
45	GCTTTTACCC CGCATACTGC CGCCAGAGTC ACCCAGGGGC GCCGGGTTGT CATTGATGAG	3117
	GCTCCATCCC TCCCCCTCA CCTGCTGCTG CTCCACATGC AGCGGGCCGC CACCGTCCAC	3177
	CTTCTTGCG ACCCGAACCA GATCCAGCC ATCGACTTTG AGCACGCTGG GCTCGTCCCC	3237
50	GCCATCAGGC CCGACTTAGG CCCACCTCC TGGTGGCATG TTACCCATCG CTGGCCTGCG	3297
	GATGTATGCG AGCTCATCCG TGGTGATAC CCCATGATCC AGACCACTAG CCGGGTTCTC	3357
	CGTTCGTTGT TCTGGGGTGA GCCTGCCGTC GGGCAGAAAC TAGTGTTCAC CCAGGCGGCC	3417
55	AAGCCCGCCA ACCCGGCTC AGTGACGGTC CACGAGGCGC AGGCGCTAC CTACACGGAG	3477

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	ACCACTATTA TTGCCACAGC AGATGCCCCG GGCCTTATTC AGTCGTCTCG GGCTCATGCC	3537
	ATTGTTGCTC TGACGGGCCA CACTGAGAAG TGCATCATCA TTGACGCACC AGGCCTGCTT	3597
5	CGCGAGGTGG GCATCTCCGA TGCAATCGTT AATAACTTTT TCCTCGCTGG TGGCGAAATT	3657
	GGTCACCAGC GCCCATCAGT TATCCCCGT GGCAACCCTG ACGCCAATGT TGACACCCTG	3717
10	GCTGCCTTCC CGCCGTCTTG CCAGATTAGT GCCTTCCATC AGTTGGCTGA GGAGCTTGGC	3777
	CACAGACCTG TCCCTGTTGC AGCTGTTCTA CCACCCTGCC CCGAGCTCGA ACAGGGCCTT	3837
	CTCTACCTGC CCCAGGAGCT CACCACCTGT GATAGTGTG TAACATTGTA ATTAACAGAC	3897
15	ATTGTGCACT GCCGCATGGC CGCCCCGAGC CAGCGCAAGG CCGTGTCTGC CACACTCGTG	3957
	GGCCGCTACG GCGGTGCGAC AAAGCTCTAC AATGCTTCCC ACTCTGATGT TCGCGACTCT	4017
20	CTCGCCGTT TTATCCCGGC CATTGGCCCC GTACAGGTTA CAACTTGTGA ATTGTACGAG	4077
	CTAGTGGAGG CCATGGTCGA GAAGGGCOAG GATGGCTCCG CCGTCTTGA GCTTGATCTT	4137
	TGCAACCGTG ACGTGTCCAG GATCACCTTC TTCCAGAAAG ATTGTAACAA GTTCACCACA	4197
25	GGTGAGACCA TTGCCCATGG TAAAGTGGGC CAGGACATCT CGGCCTGGAG CAAGACCTTC	4257
	TGCGCCCTCT TTGGCCCTTG GTTCCGCGCT ATTGAGAAGG CTATTCTGGC CCTGCTCCCT	4317
30	CAGGGTGTGT TTTACGGTGA TGCTTTGAT GACACCGTCT TCTCGGCGGC TGTGGCCGCA	4377
	GCAAAGGCAT CCATGGTGTT TGAGAATGAC TTTCTGAGT TTGACTCCAC CCAGAATAAC	4437
	TTTTCTCTGG GTCTAGAGTG TGCTATTATG GAGGAGTGTG GGATGCCGCA GTGGCTCATC	4497
35	CGCCTGTATC ACCTTATAAG GTCTGCGTGG ATCTTGACAG CCCCAGGA GTCTCTGCGA	4557
	GGGTTTTGGA AGAAACACTC CGGTGAGCCC GGCACCTTC TATGGAATAC TGTCTGGAAT	4617
40	ATGGCCGTTA TTACCCACTG TTATGACTTC CGCGATTTTC AGGTGGCTGC CTTTAAAGGT	4677
	GATGATTCGA TAGTGCTTTG CAGTGAGTAT CGTCAGAGTC CAGGAGCTGC TGTCTGATC	4737
	GCCGGCTGTG GCTTGAAGTT GAAGGTAGAT TTCCGCCCGA TCGGTTTGTA TGCAGGTGTT	4797
45	GTGGTGGCCC CCGGCCTTGG CGCGCTCCCT GATGTTGTGC GTTCGCCGG CCGGCTTACC	4857
	GAGAAGAATT GGGGCCCTGG CCCTGAGCGG GCGGAGCAGC TCGCCTCGC TGTTAGTGAT	4917
50	TTCTCCGCA AGCTACGAA TGAGCTCAG ATGTGTGTGG ATGTTGTTTC CCGTGTAT	4977
	GGGGTTTCCC CTGGA CTGCTCATAA CTGATTGGCATGC TACAGGCTGT TGCTGATGGC	5037
	AAGGCACATT TCACTGAGTC AGTAAACCA GTGCTCGACT TGACAAATTC AATCTTGTGT	5097
55	CGGGTGAAT GA ATAACATGTC TTTTGCTGCG CCCATGGGTT CGCGACCATG	5149

	CGCCCTCGGC CTATTTTGT	GCTGCTCCTC ATGTTTTTGC CTATGCTGCC CGCGCCACCG	5209
5	CCCGGTCAGC CGTCTGGCCG	CCGTCGTGGG CGGCGCAGCG GCGGTTCCGG CGGTGGTTTC	5269
	TGGGGTGACC GGGTTGATTC	TCAGCCCTTC GCAATCCCCT ATATTATCC AACCAACCCC	5329
	TTCGCCCCG ATGTCACCGC	TGCGGCCGGG GCTGGACCTC GTGTTGCCA ACCCGCCCGA	5389
10	CCACTCGGCT CCGCTTGGCG	TGACCAGGCC CAGCGCCCCG CCGTTGCCTC ACGTCGTAGA	5449
	CCTACCACAG CTGGGGCCGC	GCCGCTAA CCGCGGTCGC TCCGGCCCAT GACACCCCGC	5507
15	CAGTGCCTGA TGTGACTCC	CGCGGCGCCA TCTTGCGCCG GCAGTATAAC CTATCAACAT	5567
	CTCCCCTTAC CTCTTCCGTG	GCCACCGGCA CTAACCTGGT TCTTTATGCC GCCCCTCTTA	5627
	GTCCGCTTTT ACCCCTTCAG	GACGGCAGCA ATACCATAT AATGGCCACG GAAGCTTCTA	5687
20	ATTATGCCCA GTACCGGGTT	GCCCGTGCCA CAATCCGTTA CCGCCCGCTG GTCCCAATG	5747
	CTGTGCGCGG TTACGCCATC	TCCATCTCAT TCTGGCCACA GACCACCACC ACCCGACGT	5807
25	CCGTTGATAT GAATTCAATA	ACCTCGACGG ATGTTGCTAT TTAGTCCAG CCCGGCATAG	5867
	CCTCTGAGCT TGTGATCCCA	AGTGAGCGCC TAACTATCG TAACCAAGGC TGGCGCTCCG	5927
	TCGAGACCTC TGGGGTGGCT	GAGGAGGAGG CTACCTCTGG TCTTGTTATG CTTTGCATAC	5987
30	ATGGCTCACT CGTAAATTCC	TATACTAATA CACCTATAC CCGTGCCCTC GGGCTGTTGG	6047
	ACTTTGCCCT TGAGCTTGAG	TTTCCCAACC TTACCCCGG TAACACCAAT ACGCGGGTCT	6107
35	CCCGTTATTC CAGCACTGCT	CGCCACCGCC TTCGTCGCGG TGCGGACGGG ACTGCCGAGC	6167
	TCACCACCAC GGCTGCTACC	CGCTTTATGA AGGACCTCTA TTTACTAGT ACTAATGGTG	6227
	TCGGTGAGAT CGGCCGCGGG	ATAGCCCTCA CCCTGTTCAA CCTTGCTGAC ACTCTGCTTG	6287
40	GCGGCCTGCC GACAGAATTG	ATTCGTCGG CTGGTGGCCA GCTGTTCTAC TCCCGTCCCG	6347
	TTGTCTCAGC CAATGGCGAG	CCGACTGTTA AGTTGTATAC ATCTGTAGAG AATGCTCAGC	6407
45	AGGATAAGGG TATTGCAATC	CCGCATGACA TTGACCTCGG AGAATCTCGT GTGGTTATTC	6467
	AGGATTATGA TAACCAACAT	GAACAAGATC GGCCGACGCC TTCTCCAGCC CCATCGCGCC	6527
	CTTTCTCTGT CCTTCGAGCT	AATGATGTGC TTTGGCTCTC TCTACCGCT GCCGAGTATG	6587
50	ACCACTCCAC TTATGGCTCT	TCGACTGGCC CAGTTTATGT TTCTGACTCT GTGACCTTGG	6647
	TTAATGTTGC GACCGGCGCG	CAGGCCGTTG CCCGGTCGCT CGATTGGACC AAGGTCACAC	6707
	TTGACGGTCG CCCCTCTCC	ACCATCCAGC AGTACTCGAA GACCTTCTTT GTCCTGCCGC	6767
55	TCCGCGGTAA GCTCTCTTTC	TGGGAGGCAG GCACAATAA AGCCGGGTAC CCTTATAATT	6827

5
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ATAACACCAC TGCTAGCGAC CAACTGCTTG TCGAGAATGC CGCCGGGCAC CGGGTCGCTA	6887
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ATACTTTTGA TGATTCTGCG CCAGAGTGCC GCCCCTTGG CCTTCAGGGC TGCCTTTCC	7067
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AG TTTATTTGCT TGTGCCCCC TTCTTTCTGT TGCTTATTC TCATTTCTGC	7179
GTTCCGCGCT CCCTGA	7195

a fourth sequence (SEQ ID NO.10):

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35
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55

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CGTGCTCGCT CGGGTCGCTG CCTTGAGATT GGAGCCCACC CACGCTCCAT TAATGATAAT	300
CCTAATGTCC TCCATCGCTG CTTTCTCCAC CCGTCGGCC GGGATGTTCA GCGCTGGTAC	360
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10	GAGTGTCTT GTTTCCTCCA GCCCGCCGAG GGGCTGGCGG GCGACCAAGG TCATGACAAT	1500
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20	GCACGCCCTG AGGTTAACGG GCCTGAGCAG CTTAACCTCT CTTTGGACAG CCAGCAGTGT	1800
	AGTATGGCAG CCGGCCCGTT TTGCTCACC TATGCTGCCG TAGATGGCGG GCTGGAAGTT	1860
	CATTTTTCCA CCGCTGGCCT CGAGAGCGGT GTTGTCTTCC CCCCTGGTAA TGCCCCGACT	1920
25	GCCCCGCCGA GTGAGGTCAC CGCCTTCTGC TCAGCTCTTT ATAGGCACAA CCGGCAGAGC	1980
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30	CCGCCCTTTT CACCCGGGCA TGAGTGCGG TCTGCTAAC CATTTTGGG CGAGAGCACG	2100
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40	CACACCTACC CTGACGCGC TAAGATCTAT GTCGGCTCCA TTTTCGAGTC TGAGTGCACC	2400
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	TTTGAATCCA ACCGCCCCG TCAGCCACG TTGAACATAA CTGAGGATAC CGCCCGTGCG	2820
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5	AACGCTTGGC GCGCCGGGG CTTTGCGGCA TTTACTCCGC AACTGCGGC CCGTGTCACT	3060
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	CCCTGCCCTG AGCTTGAGCA GGGCCTTCTC TATCTGCCAC AGGAGCTAGC CTCCTGTGAC	3840
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5	CAGAGCCCAG GCGCCGGTTC GCTTATAGCA GGCTGTGGTT TGAAGTTGAA GGCTGACTTC	4740
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	GTCGTTGAT TCGCCGGACG GCTTTCGGAG AAGAACTGGG GGCCTGATCC GGAGCGGGCA	4860
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40	AACCACAACC CCTACATCTG TTGACATGAA TTCCATTACT TCACTGATG TCAGGATTCT	5820
	TGTTCAACCT GGCATAGCAT CTGAATTGGT CATCCAAGC GAGCGCCTTC ACTACCGCAA	5880
45	TCAAGGTTGG CGCTCGGTTG AGACATCTGG TGTGCTGAG GAGGAAGCCA CCTCCGGTCT	5940
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	TGCCCTTGGC TTAAGTGGCT TTGCCTTAGA GCTTGAGTTT CGCAATCTCA CCACCTGTAA	6060
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 AACTCGGGAG TTGTAGTTTA TTTGGCTGTG CCCACCTACT TATATCTGCT GATTCCTTT 7140
 30 ATTCCTTTT TCTCGGTCCC GCGCTCCCTG A 7171
 or a fifth sequence (SEQ ID NO.12):
 35 CGGGCCCCGT ACAGGTCACA ACCTGTGAGT TGTACGAGCT AGTGGAGGCC ATGGTCGAGA 60
 AAGGCCAGGA TGGCTCCGCC GTCCTTGAGC TCGATCTCTG CAACCGTGAC GTGTCCAGGA 120
 TCACCTTTT CCAGAAAGAT TGCAATAAGT TCACCACGGG AGAGACCATG GCCCATGGTA 180
 40 AAGTGGGCCA GGGCATTTCG GCCTGGAGTA AGACCTTCTG TGCCCTTTTC GGCCCTGGT 240
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 55 GTGAGTACCG TCAGAGTCCA GGGGCTGCTG TCCTGATTGC TGGCTGTGGC TTAAAGCTGA 720

AGGTGGGTTT CCGTCCGATT GGTTTGTATG CAGGTGTTGT GGTGACCCCC GGCCTTGGCG 780
 CGCTTCCGA CGTCGTGCGC TTGTCCGGCC GGCTTACTGA GAAGAATTGG GGCCCTGGCC 840
 CTGAGCGGGC GGAGCAGCTC CGCCTTGCTG TGCG 874

or a sequence complementary thereto.

10 14. A kit comprising, in a container or separate
 containers, a pair of single-strand primers derived
 from nonhomologous regions of opposite strands of a
 DNA duplex fragment derived from an enterically
 transmitted viral hepatitis agent whose genome
 15 contains a region which is homologous to the 1.33 kb
 DNA EcoRI insert present in plasmid pTZKF1(ET1.1)
 carried in E. coli strain BB4 and having ATCC deposit
 no. 67717.

20 15. The kit of claim 15, which are derived from
 opposite strands of the EcoRI duplex insert in said
 plasmid.

25 16. A method for detecting the presence of an
 enterically transmitted nonA/nonB hepatitis viral
 agent in a biological sample, comprising
 preparing a mixture of duplex DNA fragments
 derived from the sample,

denaturing the duplex fragments,
 30 adding to the denatured DNA fragments, a pair of
 single-strand primers derived from nonhomologous
 regions of opposite strands of a DNA duplex fragment
 derived from an enterically transmitted viral
 hepatitis agent whose genome contains a region which
 35 is homologous to the 1.33 kb DNA EcoRI insert present
 in plasmid pTZKF1(ET1.1) carried in E. coli strain
 BB4, and having ATCC deposit no. 67717,

hybridizing said primers to homologous-sequence
 region of opposite strands of such duplex DNA

fragments derived from enterically transmitted nonA/nonB hepatitis agent,

reacting the primed fragment strands with DNA polymerase in the presence of DNA nucleotides, to form new DNA duplexes containing the primer sequences, and repeating said denaturing, adding, hybridizing and reacting steps, until a desired degree of amplification of sequences is achieved.

17. The method of claim 16, wherein the primers are derived from opposite strands of the EcoRI duplex insert in said plasmid.

18. The method of claim 16, for detecting the presence of viral agent in a sample of cultured cells infected with the agent.

19. A vaccine for immunizing an individual against enterically transmitted nonA/nonB hepatitis viral agent comprising, in a pharmacologically acceptable adjuvant, a recombinant protein derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZ-RF1(ET1.1) carried in E. coli strain BB4, and having ATCC deposit no. 67717.

20. The vaccine of claim 19, wherein the protein is derived from the EcoRI insert in said plasmid.

21. A vaccine for immunizing an individual against HEV comprising, in a pharmacologically acceptable adjuvant, a protein encoded by genetic sequence 406.3-2 or 406.4-2 or a fragment thereof.

22. In a method of isolating an enterically transmitted nonA/nonB viral agent or a nucleic acid fragment produced by the agent, an improvement which

comprises: utilizing, as a source of said agent, bile obtained from a human or cynomolgus monkey having an active infection of enterically transmitted non-A/non-B hepatitis.

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23. The method of claim 22, wherein the bile is obtained from an infected cynomolgus monkey.

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24. Human polyclonal anti-serum obtained from a human immunized with a protein derived from an enterically transmitted non-A/non-B viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4 and having ATCC deposit no. 67717.

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ADD
A17